# BioMap and Living Waters

# Guiding Land Conservation for Biodiversity in Massachusetts

# **Core Habitats of Bridgewater**

This report and associated map provide information about important sites for biodiversity conservation in your area.

This information is intended for conservation planning, and is <u>not</u> intended for use in state regulations.

Produced by:

Natural Heritage & Endangered Species Program
Massachusetts Division of Fisheries and Wildlife
Executive Office of Environmental Affairs
Commonwealth of Massachusetts

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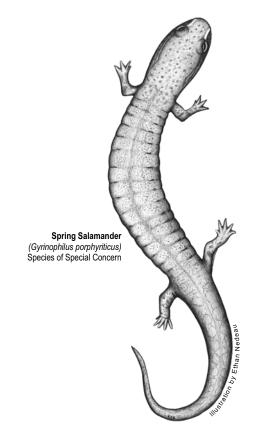
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\* Depending on the location of Core Habitats, your city or town may not have all of these sections.



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Guiding Land Conservation for Biodiversity in Massachusetts

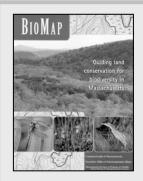
## Introduction

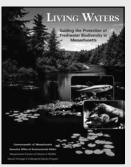
In this report, the Natural Heritage & Endangered Species Program provides you with site-specific biodiversity information for your area. Protecting our biodiversity today will help ensure the full variety of species and natural communities that comprise our native flora and fauna will persist for generatons to come.

The information in this report is the result of two statewide biodiversity conservation planning projects, BioMap and Living Waters. The goal of the BioMap project, completed in 2001, was to identify and delineate the most important areas for the long-term viability of terrestrial, wetland, and estuarine elements of biodiversity in Massachusetts. The goal of the Living Waters project, completed in 2003, was to identify and delineate the rivers, streams, lakes, and ponds that are important for freshwater biodiversity in the Commonwealth. These two conservation plans are based on documented observations of rare species, natural communities, and exemplary habitats.

#### What is a Core Habitat?

Both BioMap and Living Waters delineate Core *Habitats* that identify the most critical sites for biodiversity conservation across the state. Core Habitats represent habitat for the state's most viable rare plant and animal populations and include exemplary natural communities and aquatic habitats. Core Habitats represent a wide diversity of rare species and natural communities (see Table 1), and these areas are also thought to contain virtually all of the other described species in Massachusetts. Statewide, BioMap Core Habitats encompass 1,380,000 acres of uplands and wetlands, and Living Waters identifies 429 Core Habitats in rivers, streams, lakes, and ponds.





Get your copy of the BioMap and Living Waters reports! Contact Natural Heritage at 508-792-7270, Ext. 200 or email natural.heritage@state.ma.us. Posters and detailed technical reports are also available.

## **Core Habitats and Land Conservation**

One of the most effective ways to protect biodiversity for future generations is to protect Core Habitats from adverse human impacts through land conservation. For Living Waters Core Habitats, protection efforts should focus on the *riparian areas*, the areas of land adjacent to water bodies. A naturally vegetated buffer that extends 330 feet (100 meters) from the water's edge helps to maintain cooler water temperature and to maintain the nutrients, energy, and natural flow of water needed by freshwater species.

## In Support of Core Habitats

To further ensure the protection of Core Habitats and Massachusetts' biodiversity in the long-term, the BioMap and Living Waters projects identify two additional areas that help support Core Habitats.

In BioMap, areas shown as Supporting Natural *Landscape* provide buffers around the Core Habitats, connectivity between Core Habitats, sufficient space for ecosystems to function, and contiguous undeveloped habitat for common species. Supporting Natural Landscape was



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## BioMap and Living Waters:

## Guiding Land Conservation for Biodiversity in Massachusetts

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generated using a Geographic Information Systems (GIS) model, and its exact boundaries are less important than the general areas that it identifies. Supporting Natural Landscape represents potential land protection priorities once Core Habitat protection has been addressed.

In Living Waters, *Critical Supporting Watersheds* highlight the immediate portion of the watershed that sustains, or possibly degrades, each freshwater Core Habitat. These areas were also identified using a GIS model. Critical Supporting Watersheds represent developed and undeveloped lands, and can be quite large. Critical Supporting Watersheds can be helpful in land-use planning, and while they are not shown on these maps, they can be viewed in the Living Waters report or downloaded from <a href="https://www.mass.gov/mgis">www.mass.gov/mgis</a>.

# **Understanding Core Habitat Species, Community, and Habitat Lists**

## What's in the List?

Included in this report is a list of the species, natural communities, and/or aquatic habitats for each Core Habitat in your city or town. The lists are organized by Core Habitat number.

For the larger Core Habitats that span more than one town, the species and community lists refer to the <u>entire</u> Core Habitat, not just the portion that falls within your city or town. For a list of <u>all</u> the state-listed rare species within your city or town's boundary, whether or not they are in Core Habitat, please see the town rare species lists available at <u>www.nhesp.org</u>.

The list of species and communities within a Core Habitat contains <u>only</u> the species and

**Table 1.** The number of rare species and types of natural communities explicitly included in the BioMap and Living Waters conservation plans, relative to the total number of native species statewide.

BioMap		
	Species and Verified Natural Community Types	
Biodiversity Group	Included in BioMap	Total Statewide
Vascular Plants	246	1,538
Birds	21	221 breeding species
Reptiles	11	25
Amphibians	6	21
Mammals	4	85
Moths and Butterflies	52	An estimated 2,500 to 3,000
Damselflies and Dragonflies	25	An estimated 165
Beetles	10	An estimated 2,500 to 4,000
Natural Communities	92	> 105 community types
Living Waters		
	Species	
Biodiversity Group	Included in Living Waters	Total Statewide
Aquatic		
Vascular Plants	23	114
Fishes	11	57
Mussels	7	12
Aquatic Invertebrates	23	An estimated > 2500

natural communities that were explicitly included in a given BioMap or Living Waters Core Habitat. Other rare species or examples of other natural communities may fall within the Core Habitat, but for various reasons are not included in the list. For instance, there are a few rare species that are omitted from the list or summary because of their particular sensitivity to the threat of collection. Likewise, the content of many very small Core Habitats are not described in this report or list, often because they contain a single location of a rare plant



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# BioMap and Living Waters:

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species. Some Core Habitats were created for suites of common species, such as forest birds, which are particularly threatened by habitat fragmentation. In these cases, the individual common species are not listed.

## What does 'Status' mean?

The Division of Fisheries and Wildlife determines a status category for each rare species listed under the Massachusetts Endangered Species Act, M.G.L. c.131A, and its implementing regulations, 321 CMR 10.00. Rare species are categorized as Endangered, Threatened, or of Special Concern according to the following:

- Endangered species are in danger of extinction throughout all or a significant portion of their range or are in danger of extirpation from Massachusetts.
- *Threatened* species are likely to become Endangered in Massachusetts in the foreseeable future throughout all or a significant portion of their range.
- **Special Concern** species have suffered a decline that could threaten the species if allowed to continue unchecked or occur in such small numbers or with such restricted distribution or specialized habitat requirements that they could easily become Threatened in Massachusetts.

In addition, the Natural Heritage & Endangered Species Program maintains an unofficial watch list of plants that are tracked due to potential conservation interest or concern, but are not regulated under the Massachusetts Endangered Species Act or other laws or regulations. Likewise, described natural communities are not regulated any laws or regulations, but they can help to identify ecologically important areas that are worthy of protection. The status of natural

## **Legal Protection of Biodiversity**

BioMap and Living Waters present a powerful vision of what Massachusetts would look like with full protection of the land that supports most of our biodiversity. To create this vision, some populations of state-listed rare species were deemed more likely to survive over the long-term than others.

Regardless of their potential viability, all sites of state-listed species have full legal protection under the Massachusetts Endangered Species Act (M.G.L. c.131A) and its implementing regulations (321 CMR 10.00). Habitat of state-listed wildlife is also protected under the Wetlands Protection Act Regulations (310 CMR 10.37 and 10.59). The *Massachusetts Natural Heritage Atlas* shows Priority Habitats, which are used for regulation under the Massachusetts Endangered Species Act and Massachusetts Environmental Policy Act (M.G.L. c.30) and Estimated Habitats, which are used for regulation of rare wildlife habitat under the Wetlands Protection Act. For more information on rare species regulations, see the *Massachusetts Natural Heritage Atlas*, available from the Natural Heritage & Endangered Species Program in book and CD formats.

BioMap and Living Waters are conservation planning tools and do not, in any way, supplant the Estimated and Priority Habitat Maps which have regulatory significance. Unless and until the combined BioMap and Living Waters vision is fully realized, we must continue to protect all populations of our state-listed species and their habitats through environmental regulation.

communities reflects the documented number and acreages of each community type in the state:

- Critically Imperiled communities typically have 5 or fewer documented sites or have very few remaining acres in the state.
- *Imperiled* communities typically have 6-20 sites or few remaining acres in the state.
- *Vulnerable* communities typically have 21-100 sites or limited acreage across the state.
- **Secure** communities typically have over 100 sites or abundant acreage across the state; however excellent examples are identified as Core Habitat to ensure continued protection.



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# Understanding Core Habitat Summaries

Following the BioMap and Living Waters Core Habitat species and community lists, there is a descriptive summary of each Core Habitat that occurs in your city or town. This summary highlights some of the outstanding characteristics of each Core Habitat, and will help you learn more about your city or town's biodiversity. You can find out more information about many of these species and natural communities by looking at specific *fact sheets* at <a href="https://www.nhesp.org">www.nhesp.org</a>.

## **Next Steps**

BioMap and Living Waters were created in part to help cities and towns prioritize their land protection efforts. While there are many reasons to conserve land – drinking water protection, recreation, agriculture, aesthetics, and others – BioMap and Living Waters Core Habitats are especially helpful to municipalities seeking to protect the rare species, natural communities, and overall biodiversity within their boundaries. Please use this report and map along with the rare species and community fact sheets to appreciate and understand the biological treasures in your city or town.

## **Protecting Larger Core Habitats**

Core Habitats vary considerably in size. For example, the average BioMap Core Habitat is 800 acres, but Core Habitats can range from less than 10 acres to greater than 100,000 acres. These larger areas reflect the amount of land needed by some animal species for breeding, feeding, nesting, overwintering, and long-term survival. Protecting areas of this size can be

very challenging, and requires developing partnerships with neighboring towns.

Prioritizing the protection of certain areas within larger Core Habitats can be accomplished through further consultation with Natural Heritage Program biologists, and through additional field research to identify the most important areas of the Core Habitat.

#### **Additional Information**

If you have any questions about this report, or if you need help protecting land for biodiversity in your community, the Natural Heritage & Endangered Species Program staff looks forward to working with you.

Contact the Natural Heritage & Endangered Species Program:

by Phone 508-792-7270, Ext. 200

by Fax: 508-792-7821

by Email: natural.heritage@state.ma.us.

by Mail: North Drive

Westborough, MA 01581

The GIS datalayers of BioMap and Living Waters Core Habitats are available for download from MassGIS: www.mass.gov/mgis

Check out www.nhesp.org for information on:

- Rare species in your town
- Rare species fact sheets
- BioMap and Living Waters projects
- Natural Heritage publications, including:
  - Field guides
  - \* Natural Heritage Atlas, and more!



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# **BioMap: Species and Natural Communities**

## Bridgewater

## Core Habitat BM1166

**Natural Communities** 

<u>Common Name</u> <u>Scientific Name</u> <u>Status</u>

Acidic Graminoid Fen Vulnerable

Coastal Atlantic White Cedar Swamp Imperiled

Red Maple Swamp Secure

**Plants** 

<u>Common Name</u> <u>Scientific Name</u> <u>Status</u>

Gypsywort Lycopus rubellus Endangered

Long's Bulrush Scirpus longii Threatened

Plymouth Gentian Sabatia kennedyana Special Concern

Rigid Flax Linum medium var texanum Threatened

Round-Fruited False-Loosestrife Ludwigia sphaerocarpa Endangered

Invertebrates

Common Name Scientific Name Status

Chain Fern Borer Moth Papaipema stenocelis Threatened

Hessel's Hairstreak Callophrys hesseli Special Concern

Kennedy's Emerald Somatochlora kennedyi Endangered

New England Bluet Enallagma laterale Special Concern

Sensitive Rare Invertebrate

Water-Willow Stem Borer Papaipema sulphurata Threatened

Vertebrates

<u>Common Name</u> <u>Scientific Name</u> <u>Status</u>

Blanding's Turtle Emydoidea blandingii Threatened

Blue-spotted Salamander Ambystoma laterale Special Concern

Eastern Box Turtle Terrapene carolina Special Concern

Four-toed Salamander Hemidactylium scutatum Special Concern



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# **BioMap: Species and Natural Communities**

## Bridgewater

Spotted Turtle Clemmys guttata Special Concern

Core Habitat BM1168

**Natural Communities** 

Scientific Name Common Name Status

Red Maple Swamp Secure

Vertebrates

Common Name Scientific Name <u>Status</u>

Spotted Turtle Clemmys guttata Special Concern

Core Habitat BM1176

**Natural Communities** 

Scientific Name Common Name Status

Alluvial Atlantic White Cedar Swamp Imperiled

Alluvial Red Maple Swamp Vulnerable

Red Maple Swamp Secure

**Plants** 

Common Name Scientific Name Status

Long-Leaved Panic-Grass Panicum rigidulum ssp pubescens **Threatened** 

Pale Green Orchis Platanthera flava var herbiola **Threatened** 

Vertebrates

Common Name Scientific Name Status

American Bittern Botaurus lentiginosus Endangered

Blanding's Turtle Emydoidea blandingii Threatened

Common Moorhen Gallinula chloropus Special Concern

Eastern Box Turtle Terrapene carolina Special Concern

Eastern Spadefoot Scaphiopus holbrookii Threatened

Four-toed Salamander Hemidactylium scutatum Special Concern

**Grasshopper Sparrow** Ammodramus savannarum Threatened



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http://www.nhesp.org

# **BioMap: Species and Natural Communities**

## Bridgewater

King Rail Rallus elegans Threatened

Long-eared Owl Asio otus Special Concern

Northern Red-bellied Cooter Pseudemys rubriventris Endangered

Pied-Billed Grebe Podilymbus podiceps Endangered

Spotted Turtle Clemmys guttata Special Concern

Upland Sandpiper Bartramia longicauda Endangered

Wood Turtle Clemmys insculpta Special Concern

## **Core Habitat BM1186**

Invertebrates

<u>Common Name</u> <u>Scientific Name</u> <u>Status</u>

New England Bluet Enallagma laterale Special Concern

Water-Willow Stem Borer Papaipema sulphurata Threatened

# **BioMap: Core Habitat Summaries**

## Bridgewater

## Core Habitat BM1166

This Core Habitat is one of the largest unfragmented and pristine areas of wetland habitat in eastern Massachusetts. The diverse natural wetland communities provide critical habitat for several rare insects and support globally rare and Endangered plant species. The area contains some of the most important habitat in the state for rare salamanders and turtles, including Blue-spotted Salamanders and Spotted Turtles. Much of this Core Habitat is protected as part of the Hockomock Swamp Wildlife Management Area.

## **Natural Communities**

This Core Habitat contains diverse acidic peatlands and forested swamps. This includes the largest and highest-quality Acidic Graminoid Fen in the state, and also the largest Coastal Atlantic White Cedar Swamp in the state. Acidic Graminoid Fens are sedge and Sphagnum-dominated acidic peatlands that experience some groundwater and/or surface water flow but no calcareous seepage. Standing water is often present throughout much of the growing season. Meanwhile, Coastal Atlantic White Cedar Swamps are acidic, low nutrient basin swamps dominated by Atlantic White Cedar in the overstory and a mixture of species in the understory.

#### **Plants**

The state's largest population of the Endangered Round-Fruited Loosestrife, which usually grows along acidic ponds associated with large wetland complexes, is found within this Core Habitat. Several areas along the shore of Lake Nippenicket support populations of the lovely and globally rare Plymouth Gentian.

#### Invertebrates

Hockomock Swamp is home for many rare invertebrates, including at least three rare species of moths and several rare species of dragonflies and damselflies. For many of these species, Hockomock Swamp is within dispersal distance of several smaller Core Habitats nearby, and may serve as a reservoir population for these peripheral populations. Hockomock Swamp is actually a mosaic of different wetland habitats, including stands of Atlantic White Cedar trees that support a population of Hessel's Hairstreak butterfly, open sunny wetlands with Virginia Chain Fern that are fed on by the rare Chain Fern Borer moth, and Water-willow that is the host plant of the Water-willow Stem Borer moth, a species that occurs nowhere else outside of Massachusetts. Rare dragonflies and damselflies inhabiting Hockomock Swamp include the New England Bluet damselfly and Kennedy's Emerald dragonfly, which is not known to currently occur anywhere else in the state.

#### Vertebrates

This Core Habitat contains some of the most important areas of habitat in the state for Blue-spotted Salamanders and Spotted Turtles, including large expanses of forested and shrub wetlands and many Certified and Potential Vernal Pools interspersed with upland forest. This area also contains significant habitat for Four-toed Salamanders and likely Eastern Box Turtles and Blanding's Turtles as well. The Core Habitat provides important breeding habitat for birds characteristic of forested and shrub swamps of southeastern Massachusetts. Approximately 20% of this Core Habitat is not currently protected. Especially important are unprotected concentrations of Potential Vernal Pools along the northwestern, northern, southeastern, and southern borders of the Core Habitat.



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# **BioMap: Core Habitat Summaries**

## Bridgewater

## **Core Habitat BM1168**

This Core Habitat contains the eastern portion of the Hockomock Swamp Wildlife Management Area and adjacent wetlands and undeveloped uplands. The Core Habitat encompasses a very large Red Maple Swamp, and provides habitat for rare salamanders and turtles, such as Spotted Turtles and Bluespotted Salamanders.

## **Natural Communities**

This Core Habitat contains a very large Red Maple Swamp with the pit and mound microtopography and large tree sizes characteristic of a mature swamp. Red Maple Swamps are acidic forested wetlands that are dominated by Red Maple. They are the most common forested wetlands in Massachusetts. This community type is highly variable in its species composition. Here the mature swamp's 700 acres are embedded within a large naturally forested area.

## Vertebrates

This Core Habitat encompasses the eastern portion of the Hockomock Swamp Wildlife Management Area and adjacent wetlands and undeveloped uplands to the south and northwest. This Core Habitat includes habitat that is significant for Spotted Turtles and likely Blue-spotted Salamanders as well. It may also contain habitat for Four-toed Salamanders and Blanding's Turtles in the Town River and adjacent wetlands and uplands. This area includes habitat for a variety of breeding birds, including species that inhabit forested wetlands. Wetlands and adjacent uplands in the southern, western, and northern portions of this Core Habitat need to be protected.

#### Core Habitat BM1176

This large and diverse Core Habitat encompasses habitat for state-listed rare plants, amphibians, reptiles, marsh birds, and grassland birds. It includes over 10 miles of the Taunton River and substantial reaches of several of its tributaries. Also included are a variety of forested wetlands, including several large Alluvial Red Maple Swamps. Much of this key Core Habitat remains unprotected.

## **Natural Communities**

This Core Habitat contains a variety of forested swamps. It includes several large Alluvial Red Maple Swamps with intact hydrology and minimal disturbances. Alluvial Red Maple Swamps are a type of Red Maple Swamp that occurs in low areas along rivers and streams. Regular flooding enriches the soil with nutrients, resulting in an unusual set of associated trees and plants. One of the swamps in this complex is influenced by seepage and described as the only known one of its kind in the state.

#### **Plants**

A population of the Threatened Pale Green Orchis is found along a vernal pool near the Taunton River.



# **BioMap: Core Habitat Summaries**

## Bridgewater

## Vertebrates

This Core Habitat encompasses significant riverine, wetland, and upland habitats for Redbellied, Blanding's, Wood, Spotted, and Eastern Box Turtles. Significant habitat for Four-toed Salamanders is also present. Two important areas of freshwater marsh provide habitat for rare birds, including Pied-billed Grebes, American Bitterns, and King Rails. Significant breeding habitat for Upland Sandpipers and Grasshopper Sparrows is also present. Relatively large areas of habitat exist in this Core Habitat for birds of forested wetlands. Over 90% of this large and diverse area is unprotected, and management may be needed to mitigate the fragmentation effects of several paved roads that impair wetland and riparian connectivity. Further, grasslands in the area need annual mowing and, ideally, occasional burning.

#### Core Habitat BM1186

#### Invertebrates

The boggy shoreline of Hewitt Pond, as well as Titicut Swamp to the northeast of the pond, are important habitat for both the New England Bluet damselfly and the Water-willow Stem Borer moth, both of which are endemic to the Coastal Plain of the northeast. The Water-willow Stem borer moth is found nowhere in the world outside of Massachusetts. Although surrounded by encroaching development, this Core Habitat is located less than 1 km from Hockomock Swamp to the north, which is also habitat for both the New England Bluet and the Water-willow Stem Borer. Individuals of these two species likely move between these different locations. Although Hewitt Pond itself is protected as municipal property, much of the remainder of this Core Habitat appears to be unprotected.

# **Living Waters: Species and Habitats**

## Bridgewater

## **Core Habitat LW317**

**Exemplary Habitats** 

<u>Common Name</u> <u>Scientific Name</u> <u>Status</u>

Invertebrate Habitat ------

Invertebrates

<u>Common Name</u> <u>Scientific Name</u> <u>Status</u>

Tidewater Mucket Leptodea ochracea Special Concern

**Fishes** 

Common Name Scientific Name Status

Bridle Shiner Notropis bifrenatus Special Concern

# **Living Waters: Core Habitat Summaries**

## Bridgewater

## **Core Habitat LW317**

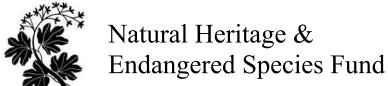
This Core Habitat spans a portion of the Taunton River and extends up into the Winnetuxet River in Halifax, supporting rare invertebrate and fish species.

Here the Taunton River supports six of the state's twelve freshwater mussel species, including the rare Tidewater Mucket. This species is more likely to be found in ponds, and this occurrence is one of only two known river occurrences in Massachusetts. The Taunton River is slow-flowing, and has a river bed of softer sands and silts, although mussels are most often found in the sections with firmer substrates.

In the Winnetuxet River, studies of the dragonflies, damselflies, and other invertebrates led to the conclusion that this is one of the least developed river segments containing some of the best remaining aquatic habitats in southeastern Massachusetts. A section of the Winnetuxet River also supports the rare Bridle Shiner. This fish Species of Special Concern is thought to be in decline in eastern Massachusetts as it was found at only 23% of its former sites in recent surveys. The Bridle Shiner is typically found in well-vegetated, quiet waters. It feeds on small aquatic insects and other invertebrates, and is an important part of the freshwater ecosystem as prey for larger fishes.

# Help Save Endangered Wildlife!

Please contribute on your Massachusetts income tax form or directly to the



To learn more about the Natural Heritage & Endangered Species Program and the Commonwealth's rare species, visit our web site at: <a href="https://www.nhesp.org">www.nhesp.org</a>.